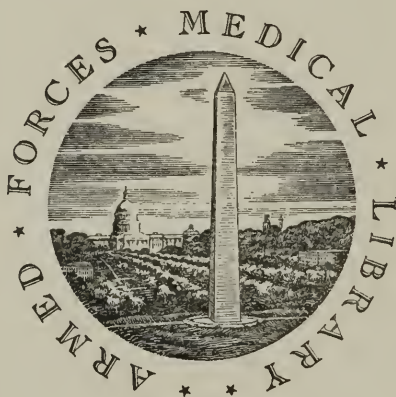


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N.L.M.

WASHINGTON, D.C.



For Dr Potter

OBSERVATIONS
ON THE
CANADA THISTLE.



OBSERVATIONS
ON
THE CANADA THISTLE.

Information concerning the CANADA THISTLE, a Plant which exceedingly annoys the Agriculture of the Northern and Western Counties of New-York. In a Communication from SAMUEL L. MITCHILL, Member of the Legislative Assembly of New-York, &c. to Dr. DAVID HOSACK, Professor of Botany, &c.—Dated July 20, 1810.

ON Monday, the 12th of February, the petition of the board of supervisors of the county of Jefferson was read in the assembly, praying that the legislature would adopt some mode of destroying a noxious weed, called the *Canadian Thistle*, which threatens to become a serious inconvenience to that part of the state. This was referred to a select committee, consisting of Messrs. Kent, Bronson, and Wheeler ; and on the 2d of March, the Chairman reported their opinion that some legislative provision ought to be made to prevent the further spread of that plant, which is becoming very injurious to agriculture in those parts of the state where the petitioners reside.

Leave was given to present a bill for that purpose ; which was accordingly reported under the title of “ an act to amend the act relative to the duties and privileges of towns.” This bill enlarges the powers of the freeholders and inhabitants of towns, to make and enforce such regulations as they may think proper, for the extirpation and destruction of the Canada Thistle.

Some valuable facts concerning the introduction of this plant into New-York, and the progress made by it there, are contained in the letter which Mr. Bulkley, member of the assembly from Madison County, received from Mr. Timothy Dewey, an actual and intelligent observer. That statement was made at my request, and very obligingly placed at my disposal. I now transmit it, together with another letter from the same gentleman to me, and a parcel of the plants themselves, for your consideration. I hope, with your aid, the botanical name and character of this vegetable intruder may be established. And I ask all the force you can bring into action, against a foe which threatens to dispossess man and beast from their respective occupancy of land.

SAMUEL L. MITCHILL.

No. I.

Letter from Mr. Dewey to Mr. Bulkley, dated
Albany, April 2, 1810.

SIR,

Agreeably to your request, I give you some of the leading traits in the character of the *Canada Thistle*.—It is found in the state of Vermont, on the east side of the

Green Mountains, and in the middle and northern parts of the state of New-Hampshire. It grows most thriftily in loamy or sandy land; such as is covered with the sugar maple, basswood, elm, butternut, birch, beach and mountain ash. It is rarely found on a clay or marshy soil. It resembles in colour and its general features and properties, the large annual thistle, of this and the eastern states, except its not being an annual plant; the stalk being much smaller and growing much higher. It grows from three to six feet in height, and frequently so thick that it is impossible for any animal to pass through the beds, or plats of it. It destroys all other vegetation, whenever the land is infested with it. I know of no vegetable that will thrive with it. It appears to be a certain poison to most plants. *Potatoes* may grow on land infested with it if hoed five or six times in the season; and I think it the only vegetable that can grow to any advantage on ground where it is; corn seldom thrives with it. Flax in a wet season will partially conquer it. Various methods have been tried to destroy it, but no one has yet succeeded except hoeing, which is practised two years in succession, and at least six times every summer; cutting it, pulling it up, and covering it with chips, straw, swingling-tow, have been practised to no purpose. It will migrate from field to field in the course of a few years, apparently exhausting in one place all the nourishment fitted for the support of its noxious qualities. It is propagated by transplanting it; and by the seed, which is blown to great distances by the winds, by means of a down attached to it. The frost kills the root annually as far into the earth as it is communicated to it. The roots descend to great depth if not stopped by *rocks, clay, or hardpan*. The roots are fre-

quently found twenty feet below the surface. Its blossom is of a pale pink colour, and shaped like the saffron, and like it armed with innumerable prickles from an eighth to half an inch in length, as are also every leaf from bottom to top. I do not know that it has any medicinal qualities. It has a bitter and slightly astringent taste.—It exhales, particularly when in bloom, an unpleasant narcotic odour. Cattle feed sparingly on it at any time. Some horses will feed upon it if cut when young and dried like hay.—In fact, I know of no good that it does on earth. I think it difficult to describe the appearance of it satisfactorily to you without a drawing of it, which I have not time to perform at present. If these observations should be of any service I shall be rewarded for penning them. If it should be your wish I can get a drawing of the plant, also a correct botanical description of it, from a friend of mine in the State of Vermont. I shall be happy in doing any thing to rid society of such a noxious plant or to alleviate, in any degree, the evils produced by it. I am with respect, &c.

TIMOTHY DEWEY.

No. II.

Letter from Mr. Dewey to Dr. Mitchill, dated
Albany, 14th July, 1810.

DEAR SIR,

I send you by the steam-boat, a specimen of the "Canada Thistle," which I think will enable you to form a more correct opinion of its qualities than you could gain from any description that could be given of it. I think the description which I sent Mr. Bulkley, last winter, from

recollection was correct in all its material parts. The specimen which I send was taken from a small plot of it in the town of Coemans about ten miles from this city. I have not been able to get a botanical description of it, nor any thing new relative to the best method of destroying it. I am inclined to believe that hoeing two or three years in succession is the only way it can be conquered. I have seen a letter (which was published in the Albany Register,) from Mr. Saunders* of the Vermont university. He seems to think it a "friend to agriculture," and one of the "greatest blessings" that the farmers of Vermont can enjoy. It is my misfortune not to agree with the learned gentlemen of the Vermont University.

I am happy to afford you an opportunity of giving a correct botanical description of the pernicious weed, as also a correct drawing of it. If the pains I have taken to procure the plant should afford you any, the least, satisfaction, I shall think myself amply rewarded. I wish to do every thing in my power for the prosperity of our country.

I am with much esteem, sir,

Your obedient servant,

TIMOTHY DEWEY.

No. III.

Letter from Daniel C. Sanders, Esq. of the University of Vermont, to a friend in Albany, on the excellence of the Canada Thistle; dated Burlington, 28th June, 1810.

DEAR SIR,

Your favour, dated "Albany, N. Y. 6 mo. 8, 1810." has just come to hand by mail. You request what in-

* See No. 3, under this article.

formation I possess concerning the plant which is called the "*Canada Thistle*." I have no evidence that the name is significant of its origin. It is to be found in every part of Vermont, and took possession of the lands before the oldest of the present inhabitants. The plant is not yet in bloom and maturity. I had cut off a head of it, in order to give you a botanical description of it. But its parts, necessary to a description on Linnæan principles, are not yet sufficiently ripened and expanded. Something further may be done, should you continue to desire it, whenever the sexual and seminal parts shall be *matured*.

In the mean time, let me allay the fears and mitigate the complaints of your New-York agriculturalists. I have myself observed the thistle for *eighteen* years ; and can speak certain things from knowledge, derived from my own experience. The plant is in itself unpleasant, armed at all points, and threatening hostility to every being who is bold enough to invade it. Its right to the soil is founded on possession immemorial. The Vermont farmer, however, possessing physical power, forgot its imprescriptible rights. They united all forces to exterminate it, "*vi et armis*." In a very early period of our existence as a state, the *legislature* of Vermont passed an act, not that it should *grow* any more, but that every landholder should cause the thistles to be *mown* before they were ripe and had any power to disperse the seeds to any greater extent. But amidst the "*veto*" of legislation and the "*caveat*" of spirited agriculturalists, *nature* said they should grow. As if they shared in the *obstinacy* of mankind, amidst resistance, they *increased* the more beneath the severest discipline of the hoe, plough, harrow legislation, and even the fire. The farmers absolutely

despaired in the unequal contest. Since they have done nothing, the dreaded enemy has seemed to retire ; and the thistles in this part of the world, have evidently and greatly *diminished*.

We seldom know the extent of the blessings we enjoy. Some of our most experienced farmers, who laboured with the greatest zeal to exterminate these thistles, now see in them, not enemies, but *friends*, in a rough dress indeed, but still salutary. Several advantages are obvious. 1. They *enrich* land, serving as a valuable manure. 2. They keep the soil *loose*. 3. They serve as *food* for cattle. The stocks of clover and other large grasses will be left often *uneaten* in a yard, but the thistle *never* escapes, being always the object of desire to *some* kind of cattle. 4. It is conceived to be *healthy*, a remedy or a preventive of the diseases common to the brute creation. One of the most experienced farmers in Vermont has lately expressed to me his wishes for the *increase* of this plant on his farm, where he once tried long and ardently to *destroy* it ; but he now has fears that it will ere long totally *disappear* from this section of the country.

Mowing it down before its seeds are ripe will not prove a sure *prevention* of its growth. The cultivation of land by *hoeing* and *ploughing* serves to extend and facilitate its perfection. Sowing lands with the ranker *grasses* will soon choak and destroy it. But, here, *time* seems to threaten its everlasting banishment, very contrary to all former expectations.

Nature has, however, made large provision to ensure its permanency, two ways. 1. By propagation from its

root. This runs into the ground to a great depth. Some say, it extends *twelve* feet beneath the surface. I have seen it grow well from the root left in cellars dug *six* feet deep from the top of the soil. Any *part* of a root will be enough to become the embryo of a *new* plant.

2. By its *seeds*. Nature ripens these about two feet above the ground, in a fine situation, elevated for easy dispersion. It is one of those composite flowers which opens its pericarpium when the seeds are ripe. These numerous seeds are endowed with *wings*, downy appendages, finely globular, which enable it to float in the air, and very generously waft the prolific race to distant fields, which are not its own. It is the swelling of its downy pinions which overcomes the resistance of its coats, opening a door for the eager seed to escape from the prison, where its further confinement would prove useless to all the purposes of vegetable life.—After all nature's ardent care to give this plant "*a local habitation and a name,*" her success in Vermont does not seem to be adequate to her efforts ; and threatens nothing inauspicious to the industrious cultivator of the varied field.

I am happy to see you, amidst your *literary* labours, so engaged to promote the *first* interest of our beloved country, *agriculture*. However hasty the present letter, you may make any use you please of my observations on this subject, as they may tend to diminish the fears and complaints respecting the Canada Thistle.

D. C. S.

Botanical description of the Canada Thistle or Cnicus Arvensis, with Observations on the Means of destroying it, or preventing its Increase. Communicated in a letter to the Hon. S. L. MITCHILL, M. D. &c. from DAVID HOSACK, M. D.

New-York, July 21st, 1810.

SIR,

I HAVE examined the plant which you sent me yesterday as the Canada thistle, and find that it is well known in Europe, both to the farmer and botanist. In Great Britain it is vulgarly called the *cursed thistle*, which appellation the *Canada* thistle no less merits in this country. You will find it described by Linnæus as the *serratula arvensis*. Mr. Curtis, in his *Flora Londinensis*, where you will see an excellent coloured figure of it, describes it as a species of *carduus*. Professor Willdenow, with more correctness, places it in the genus *cnicus*, retaining the specific name *arvensis*.

Upon carefully examining the *pappus*, especially with a glass, you will find it to be manifestly *plumose*, which is the character by which he distinguishes the genus *cnicus* from the *carduus* and *serratula*. The following description of the plant by Mr. Curtis so perfectly corresponds with that with which our country is infested, that with the aid of the annexed drawing of the plant, made by my friend Mr. J. Inderwick, from the specimen you sent me, it will readily be recognised by the farmer into whose fields it may intrude itself, and thereby enable him to take those measures for its destruction which have been found by experience to be the most effectual.

“ Root perennial, round, almost the thickness of the little finger, of a dirty white colour, penetrating deeply, and creeping far and wide.

STALK three feet or more in height, upright, somewhat branched, at the base round and somewhat wooly, above angular and smooth. **LEAVES** sessile, alternate, lanceolate, cut in so as to be somewhat pinnatifid, the sides somewhat pressed together, sinuated, waved, and curled, spinous, above smooth, green, beneath paler, scarcely villous, the uppermost ones almost entire.

FLOWERS middle-sized, of a pale purple colour, very fragrant.

FLOWER-STALKS leafy, one or two flowered, above somewhat wooly.

CALYX *common to all the florets*, ovate, contracted at top, imbricated, the scales numerous, pressed, close, lanceolate, sharp at the back, terminated by a pointed appendage, purplish, points turning a little back, and mild.

COROLLA compound, tubular, uniform, all the *florets* hermaphrodite, nearly equal, monopetalous, funnel-shaped, the *tube* very slender, the limb divided into four, linear, reflexed segments, one more deeply divided than the rest.

STAMINA: five capillary *filaments*, very short and white: *antheræ* united into a cylinder, shorter than the corolla, the mouth five-toothed, the teeth white at the tips.

PISTILLUM: German ovate, compressed; *style* filiform, longer than the stamina, of a whitish red colour: *stigma* obtuse, finally bifid.

SEEDS linear, slightly four cornered: *down*, feathered, sessile.

RECEPTACLE hairy, hairs glossy.*

After this minute description of the plant, Mr. Curtis makes the following observations upon the means of destroying it.

“ We have bestowed on this plant the harsh name of *cursed*, with a view to awaken the attention of the agriculturalist to its nature and pernicious effects; repeated observation has convinced us that many husbandmen are ignorant of its economy, and while they remain so, they will not be likely to get rid of one of the greatest pests which can affect their corn-fields and pastures.

* Curtis' *Flora Londinensis*, Fasc. 6, fig. 18.

“ Of the thistle tribe the greatest part are annual or biennial, and hence easily destroyed ; some few are not only perennial, but have powerfully creeping roots, and none so much as the present ; in pulling this plant out of the ground, we draw up a long slender root which many are apt to consider as the whole of it, but if those employed in such business examine the roots so drawn up, they will find every one of them broke off at the end, for the root passes perpendicularly to a great depth, and then branches out horizontally under ground.

“ To give an idea of its astonishing increase, we shall subjoin from the memoirs of the Bath agricultural society an experiment made for the very purpose of ascertaining it.

‘ April 1st, 1778, I planted in a garden a piece of the root of this thistle, about the size of a goose-quill, and two inches long, with a small head of leaves, cut off from the main root just as it was springing out of the ground : by the 2d of the November following this small root had thrown out shoots, several of which had extended themselves to the distance of eight feet, some had even thrown up leaves five feet from the original root : most of the shoots which had thus far extended themselves were about six inches under ground, others had penetrated to the depth of two feet and a half ; the whole together, when dug up and washed from the earth, weighed four pound. In the spring of 1779, contrary to my expectation, this thistle again made its appearance on and about the spot where the small piece was originally planted ; there were between fifty and sixty young heads, which must have sprung from the roots which had eluded the gardener’s search, though he was particularly careful in extracting them.’

“ When this paper was delivered to the society from experiments then made, I was of opinion that repeated mowing or spudding would not destroy this thistle. I have since had cause from further observation and experiments

to think differently ; so deep, however, does it penetrate, that these operations are the only ones which can well be applied to its destruction, and if they do not effectually overcome, they will greatly enfeeble it.

“ This species is seen every where by road-sides, too frequently in corn-fields, and more rarely in pastures ; it flowers from June to August.”

In the *Flora Rustica* of Doctor Martyn, Professor of Botany in the University of Cambridge, you will also see a figure and description of the same plant, under the Linnæan name of *serratula arvensis*. After describing the plant he observes :

“ This thistle is known every where by road sides, too frequently in corn fields, and *more rarely* in pastures ; flowering from June to August.

“ It has the habit of the thistles, and is universally called so in English, though Linnæus makes it a *serratula*. It is the worst pest of arable lands, having strong creeping roots, striking down to a great depth, and then branching out horizontally, so that it is very difficult to root it out where it has once got possession. *Frequent and deep ploughing in dry weather* will destroy it in arable land. In pastures it should be pulled or forked out when the ground is well soaked with wet. Mr. Curtis affirms that repeated mowing or spudding, if they do not effectually overcome, will greatly enfeeble it.

“ To us mowing has always appeared to make it run more at the root.

“ The goat and ass will eat it ; horses will sometimes crop the head when young and tender, but no other cattle seem to touch it. It is said to yield a very pure vegetable alkali when burnt.”*

Such is the information to which I have been led by the examination of the Canada thistle. In addition to the practice of frequent mowing and spudding, as the best means of destroying this weed, I would suggest the following system of culture :

1st. After deep and frequent ploughing, to occupy the ground with corn, potatoes, or some other crop which will require frequent hoeing and clearing.

2d. In the autumn, after taking off the crop, again to give the land another deep ploughing, leaving it in the rough state, so as to expose the roots of the thistle to the frost of the ensuing winter : this process will also the better prepare the soil to be laid down in grass the following spring. In doing this I would also suggest the propriety of

3dly. Sowing a much greater quantity of grass seed to the acre than is usually done. By pursuing the practice recommended by Lord Kames, of sowing from twenty to twenty-four pounds of clover seed to the acre, I have remarked that the grounds at the Elgin Botanic Garden are much more free from weeds than those of my neighbours, at the same time that the grass is much more delicate for feeding, less apt to be thrown down by the storm, and makes a less succulent hay, both more easily

* Martyn's *Flora Rustica*, vol. 4, fig. 132.

cured and better preserved than where it is more thinly spread, but of stronger growth. How far these may prove additional means of counteracting the growth of the thistle in question, I submit to you and other practical farmers,

I am sir, yours, &c.

HON. S. L. MITCHILL.

DAVID HOSACK.

[These several Papers on the Canada Thistle, are taken from the American Medical and Philosophical Register, for October, 1810.]

